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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,277	08/23/2001	Barbara J. Hughey	NSI6382	1932

7850 02/13/2003  
Samuels, Gauthier & Stevens LLP  
Suite 3300  
225 Franklin Street  
Boston, MA 02110

EXAMINER

HASHMI, ZIA R

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 02/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No.

Applicant(s)

09/938 277

HUGHEY ET AL

**Office Action Summary**

Examiner

Art Unit

Zia R. Hashmi

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 & 6
- ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

### DETAILED ACTION

1. According to "Preliminary Amendment" received August 20, 2002, the first paragraph of the text has been replaced by a new one, as indicated.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States

3. Independent claims 1, 21, 36, and 40 and dependent claims 2-5, 22-23, and 25 are rejected under 102(b) as being anticipated by Koudijs et al. ( 5,438,194 ).
4. With respect to claims 1 and 21 dependent claims 2-5, 22-23, and 25, Koudijs et al. disclose a method and apparatus of converting a non-gaseous sample for accelerator mass spectrometry analysis, comprising: converting desired elements present in the non-gaseous sample to a predetermined gaseous form ( col. 3, lines 63-67 and Fig. 1 and 2 ), and transporting the predetermined gaseous form to an accelerator mass spectrometer ion source ( col. 2, lines 12-14, col. 3, lines 40-43, Fig. 1 and 3 ). They also disclose that the step of converting comprises oxidizing the non-gaseous sample ( col. 4, lines 6-11 and 27-40 ), and that the step of chemically reacting comprises oxidizing and converting carbon in the sample to carbon dioxide ( col. 4, lines 34-40 ) by pyrolysis ( col. 3, lines 30-32 and col. 5, lines 11-13 ). Koudijs et al. further disclose a method of converting a non-gaseous sample for analytical processing.

comprising: injecting the sample directly into a converter ( col. 3, line 52 and Fig. 2 ), which comprises of a pyrolizer ( col. 3, lines 31-32 and col. 5, line 13 ), converting the desired elements present in the sample to a predetermined gaseous form; and providing the predetermined gaseous form to an analytical device for processing ( col. 4, lines 4-11 ), comprising of an accelerator mass spectrometer ( col. 6, lines 11-12 ). They also disclose an interface for introducing non-gaseous sample as a predetermined gaseous form into an accelerator mass spectrometer, the interface comprising a first stage that receives the non-gaseous sample and separates an analyte from carrier material of the sample, to provide a separated sample stream that comprises the analyte ( 3 and 5 in Fig. 1 ); and a second stage that receives the separated sample stream converted into a gaseous form , and transports the gaseous form along a flow line to the accelerator mass spectrometer ( col. 3, lines 27-37, 3 and 5 in Fig. 1 ).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U S C 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6-9, 10-20, 24, 26-35, 37-39, and 41-44 are rejected as being unpatentable over Koudijs et al. ( 5,438,194 ) , in view of Zare et al. ( 4,988,879 ) and Hofstadler et al. ( 6,342,393 ).

7. With respect to dependent claims 7-9 and 13, Koudijs et al. fail to disclose method of converting desired elements present in non-gaseous form by depositing non-gaseous sample on a solid substrate, irradiating with a laser beam and desorbing the non-gaseous sample. Zare et al., however, disclose a method wherein prior to step of converting, the method comprises depositing the non-gaseous sample on a solid substrate ( col. 5, lines 41-42), and desorbing the non-gaseous sample from the substrate ( col. 5, lines 12-15, 43-49, col. 8, lines 20-24, col. 10, lines 1-5, and 102 in Fig. 1 ), by irradiating the sample with a laser beam ( col. 5, lines 45-49, col. 7, lines 17-20 and Fig. 1 ). In their method, volatile components are removed from the sample subsequent to the step of depositing, and prior to step of desorbing ( col. 14, lines 35-45. ).

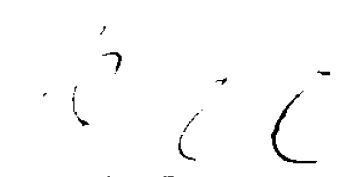
8. With respect to claims 6, 10-12, 14-20, 24, 26-35, 37-39, and 41-44, Koudijs et al. fail to disclose method or apparatus in form of an interface for converting non-gaseous sample for analytical processing by nebulizing the sample using electrospray technique. However, Hofstadler et al. disclose a method of nebulizing a sample by using electrospray, in form of providing fine ionized spray to the converter, converting the desired elements present in the nebulized sample to predetermined gaseous form ( col. 6, lines 57-60 and Fig. 1 ), and providing gaseous form to an analytical processing device, like a mass analyzer, for analysis ( col. 6, lines 36-37, 42-43 and Fig. 1 ).

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method and apparatus of Koudijs, Zare and Hofstadler et al. and incorporate features like introduction of sub-micrometer sized particles to non-gaseous sample, or introducing sample into the converter using piezo-electric pipetter, because Hofstadler et al. teach ( col. 1, lines 29-32 ) that the utility of mass spectrometer (MS) as an analytical tool is the availability of a variety of different MS methods, instruments and techniques, which can provide different pieces of information about the samples.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Meyer discloses ( 6,455,844 ) a method and apparatus for detecting single atoms of isotopes using accelerator mass spectrometry.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zia Hashmi whose telephone number is (703) 305-0419. The examiner can normally be reached between 8 30 AM- 5 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (703) 308-4116.

  
JOHN R. LEE  
SUPERVISOR, PATENT EXAMINER  
ART UNIT 2881

Zia Hashmi

January 14, 2002.